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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RER03003	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP 03/11903	International filing date (day/month/year) 18.09.2003	Priority date (day/month/year) 18.09.2002
International Patent Classification (IPC) or national classification and IPC Int.Cl. H01L21/027, G03F7/20, G02B5/18, G03F7/004, H01L21/3065		
Applicant TOKYO UNIVERSITY OF SCIENCE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 26.03.04	Date of completion of this report 13.12.2004	
Name and mailing address of the IPEA/JP Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer HIDEKI SATO Telephone No. +81-3-3581-1101 Ext.	2M 3154

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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I Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
Nos. _____, as originally filed
Nos. _____, as amended (together with any statement) under Article 19
Nos. _____, filed with the demand
Nos. _____, filed with the letter of _____
- ☐ the drawings:
sheets/figs _____, as originally filed
sheets/figs _____, filed with the demand
sheets/figs _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:

The "special technical features" of claim 1-5, 18, 28-32, 36, 37, 39 and 42-49 relates to the patterning of a SOG layer or a silicone rubber layer.

The "special technical features" of claim 6-12, 19, 24-27 and 33-35 relates to the etching using the mask made of a SOG layer or a silicone rubber layer.

The "special technical features" of claim 13-17 and 38 relates to a method for fixing particulate.

The "special technical features" of claim 20-23, 40 and 41 relates to a laminated body which comprises a SOG layer or a silicone rubber layer.

There is no technical relationship among those inventions involving one or more of the same or corresponding technical features. Therefore, these groups of inventions are not so linked as to form a single general inventive concept.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
☐ the parts relating to claims Nos.

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PCT/JP 03 / 11903**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1 - 49</u>	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	<u>1 - 49</u>	NO
Industrial applicability (IA)	Claims	<u>1 - 49</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

D1:JP 62-109049 A(Matsushita Electric Industrial Co.,Ltd.) 1987.05.20
D2:JP 60-263145 A(FUJITSU LIMITED) 1985.12.26
D3:JP 07-219228 A(TOMOE GAWA PAPER Co.Ltd.) 1995.08.18
D4:JP 2002-192500 A(RICOH OPTICAL INDUSTRIES Co.,Ltd.) 2002.07.10
D5:JP 06-196086 A(Mitsubishi Electric Corp.) 1994.07.15

The subject matters of claims 1-9,11,12,18-37,39-49 do not appear to involve an inventive step in view of the document 1 cited in the ISR, the document 2 cited in the same and the document 3 cited in the same.

D1, which is considered to represent the most relevant state of the art, discloses irradiating a surface of a resist layer with an electron beam whose accelerating voltage is changed according to irradiation position, and removing the exposed parts.

So, comparing the invention in these claims of the art and the invention described in D1, the difference between the both inventions is the resist irradiated with an electron beam.

D2 discloses the solvent including silicone polymer as a resist irradiated with an electron beam. This solvent corresponds to the SOG solvent.

D3 discloses the silicone rubber as a resist irradiated with an electron beam.

The technical feature in D1 and the feature in D2 and D3 are concerned with mutually related technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature in D2 to substitute the feature disclosed in D1.

The subject matters of claims 10 do not appear to involve an inventive step in view of the document 2, the document 3 and the document 4 cited in the ISR.

D4 discloses pushing a mold against the resist as the surface processing method.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: **V**

The subject matters of claims 13-17, 38 do not appear to involve an inventive step in view of the document 2, the document 3 and the document 5 cited in the ISR.

D5 discloses a method for fixing particulate comprising the steps of irradiating the resist layer mixed with particulate and removing the exposed part of the resist layer.